



Introduction on the INGV activities

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EARTHQUAKES
VOLCANOES
ENVIRONMENT





Istituto Nazionale di Geofisica e Vulcanologia



INGV was founded in 2000 (Law n.381 of 29 Sep. 1999) through a process of merging, reorganizing and rationalizing the entire national research network that revolves around:

- the assessment and mitigation of seismic and volcanic risk,
- the investigation of geophysical, seismic and volcanic phenomena, and
- the understanding of the mechanisms that control the evolution our planet.



Mission

- Observation and monitoring of geophysical processes in both the solid and fluid components of planet Earth
- Study and modelling of natural geophysical and volcanological processes
- Surveillance of the seismicity and volcanic activity of the entire national territory through state-of-the-art instrumental networks
- Development of original methods to evaluate a variety of natural risks (earthquakes, tsunami, volcanoes, climate...), particularly focused on the Italian region
- Innovative research in Earth Sciences, focused on global climatic change, national security and sustainable development



Seismic and volcanic surveillance

- INGV operates in close collaboration with the Ministry of Instruction, University and Research (MIUR) and has priority agreements with the Civil Protection Department (DPC) and with other authorities in charge of managing the emergencies, both on a national scale and on a local scale.
- INGV is in charge of the surveillance of the seismicity and volcanic activity of the entire national territory through state-of-the-art instrumental networks covering the national territory or concentrated around the active volcanoes. The incoming signals are transmitted in real-time to the operations rooms in Rome, Naples and Catania, where highly trained staff, present round-the-clock, analyze them to obtain the main parameters of the ongoing events and processes.

Divisions





Personnel

INGV is composed (as for March 2017) by:

658 personnel units with permanent contracts;

188 personnel units with temporary contracts;

+ 190 other units (research grants, collaborators and cooperating scientists).

Summing up to **1036 personnel units**
(scientists, technicians, administratives).



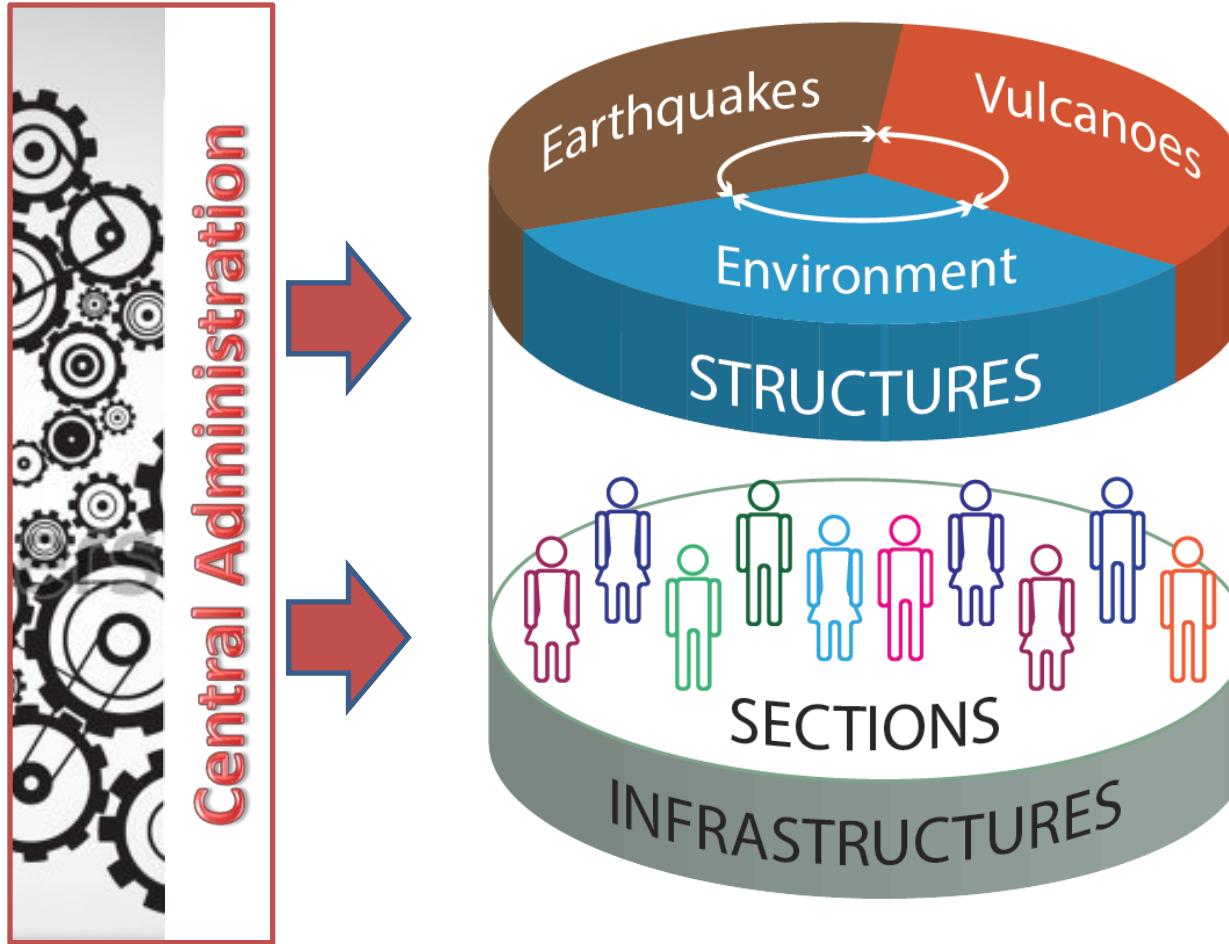


Departments

The Statute of INGV shows a research network based on three thematic **Departments**:

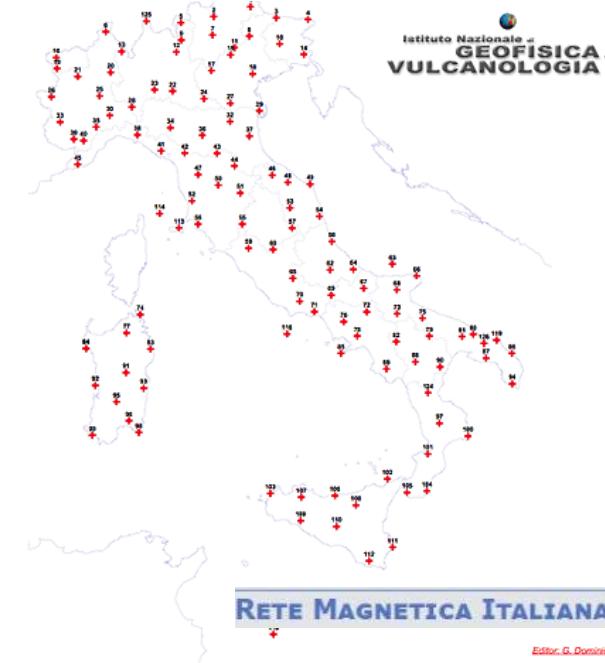
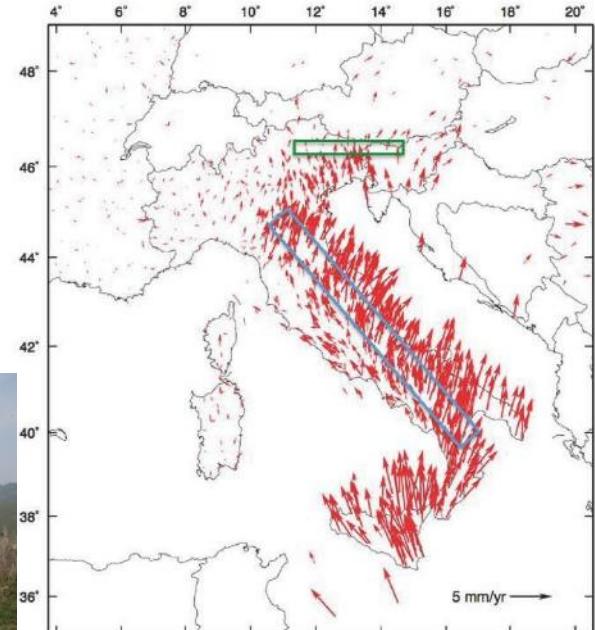
- Earthquakes
- Volcanoes
- Environment

Scientific Organization





Monitoring networks





Observatories: geomagnetic field, ionosphere, volcanoes, marine processes...





Laboratories



Geochemistry



Petrology



HP-HT



Paleomagnetism and Rock magnetism

Data Products (real-time data) and Software

The screenshot shows the INGV European Integrated Data Archive homepage. The top navigation bar includes links for "Home", "About", "Products", "Services", "Data", "Events", "Publications", "Press", "Contact", and "Logout". A search bar is present above the main content area. The main content area features a green header "Welcome to Broad Band Seismic Waveform" and a sub-header "Events from INGV Broad Band Seismometers". Below this, a table lists the last 20 seismic events. The table has columns for "Ora (UTC)" (Time), "Latitudine" (Latitude), "Longitudine" (Longitude), "Profondità (km)" (Depth), and "MAGNITUDINE" (Magnitude). Each row contains a link to a detailed event page. At the bottom of the page, there is a footer with links for "Home", "Politica Privacy", "Sulla rete", "Suggerimenti", "Logout", and "RSS".

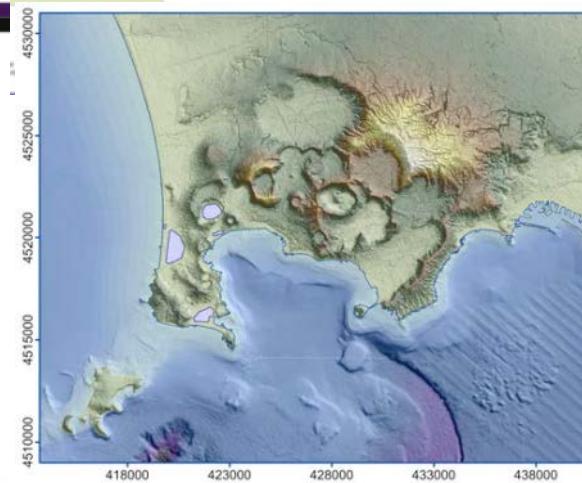
Ora (UTC)	Latitudine	Longitudine	Profondità (km)	MAGNITUDINE
2023-09-29 09:00:00	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:59	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:58	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:57	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:56	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:55	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:54	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:53	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:52	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:51	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:50	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:49	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:48	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:47	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:46	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:45	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:44	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:43	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:42	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:41	40.0	13.0	5.0	MI 4.1
2023-09-29 08:59:40	40.0	13.0	5.0	MI 4.1

The screenshot shows the homepage of the Geomagnetism website. At the top, there's a banner with the word 'Geomagnetism' and a background image of Earth's magnetic field. Below the banner, there's a navigation bar with links: 'Home', 'In Italia', 'In Australia', 'Tutte le stazioni', 'Area Download', 'Educational', and 'Portale dei dati geomagnetici'. The main content area has two sections: one for 'Osservatori e Stazioni Geomagnetiche' (with a link to 'Stazioni di riferimento IGS') and another for 'Portale dei dati geomagnetici' (with a link to 'Dati storici IGS'). Below these are two maps: one of Italy with red dots for stations and a callout for 'CTS' at 41°21'E, 11°39'N; and another of the Southern Hemisphere with red dots for stations and a callout for 'DMC' at 164°15'E, 70°15'S.

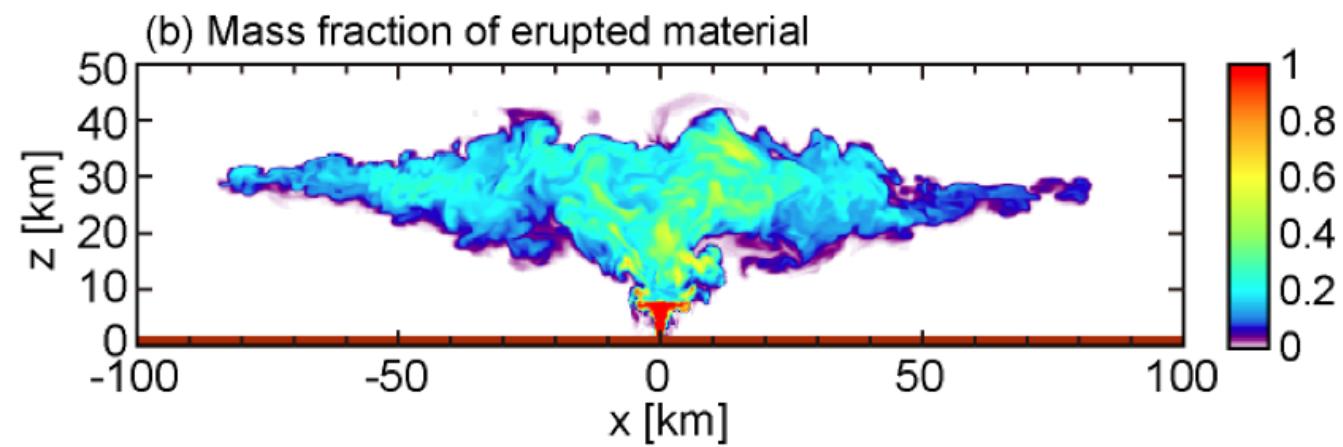
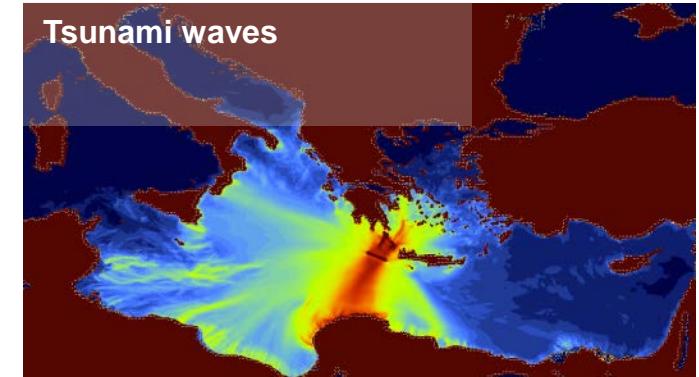
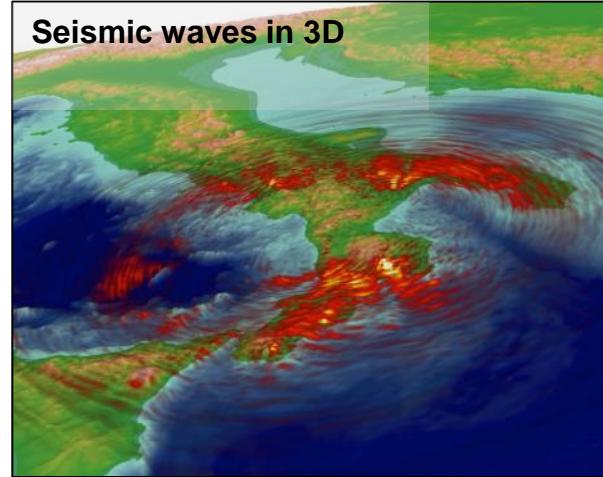
The screenshot shows the homepage of the 'electronic Space Weather upper atmosphere' website. The header features the title 'electronic Space Weather upper atmosphere' with a subtitle 'Notizie mondiali di geofisica e atmosferologia'. Below the header is a banner for 'EUROPEAN SPACE AGENCY'. The main content area includes sections for 'Geophysical monitoring' (with icons for Sunspot, Geomagnetic, and Ionosphere), 'Atmospheric monitoring' (with icons for Wind, Temperature, and Precipitation), 'Radiative monitoring' (with icons for X-ray, Ultraviolet, and Visible), and 'Educational' (with an icon of a graduation cap). A central box titled 'Welcome' contains text about the mission's goal of understanding space weather and its impact on Earth. Another box below it discusses vertical wind sounding data from the Antarctic. A 'Register Your Account' button is present. On the right side, there are links for 'Email', 'Password', 'Login', and 'Forgot Password?'. At the bottom, there are links for 'Today's Weather', 'Monitoring', 'Accessories', 'Help', 'FAQ', 'About', and 'Feedback'.

The screenshot shows a Microsoft Excel spreadsheet with the following visible content:

- DAIE** - The main title at the top left.
- Demagnetization Analysis In Excel** - A subtitle below the main title.
- Tables:**
 - A table with columns: Name, Type, Value, and Units. It includes rows for "magnet", "air gap", "pole face", "pole tip", "pole center", "pole end", "pole base", "pole tip", "pole center", "pole end", "pole base".
 - A table with columns: Name, Type, Value, and Units. It includes rows for "magnet", "air gap", "pole face", "pole tip", "pole center", "pole end", "pole base", "pole tip", "pole center", "pole end", "pole base", "pole tip", "pole center", "pole end", "pole base".
 - A table with columns: Name, Type, Value, and Units. It includes rows for "magnet", "air gap", "pole face", "pole tip", "pole center", "pole end", "pole base", "pole tip", "pole center", "pole end", "pole base", "pole tip", "pole center", "pole end", "pole base".
- Graphs:**
 - A circular plot showing a vector field with arrows indicating direction and magnitude.
 - A graph of "Hysteresis loop" showing magnetization (H) on the x-axis and magnetomotive force (MMF) on the y-axis. The curve starts at the origin, rises linearly, then follows a hysteresis loop path.
 - A graph of "Demagnetization curve" showing MMF on the x-axis and magnetization (H) on the y-axis. The curve starts at a positive value on the y-axis and decreases as MMF increases.
 - A graph of "Magnetization curve" showing MMF on the x-axis and magnetization (H) on the y-axis. The curve starts at the origin and increases monotonically.
 - A graph of "Core loss" showing MMF on the x-axis and core loss (W) on the y-axis. The curve shows a periodic pattern of high and low loss values.



High-Performance Computing



Numerical modeling of volcanic eruptions

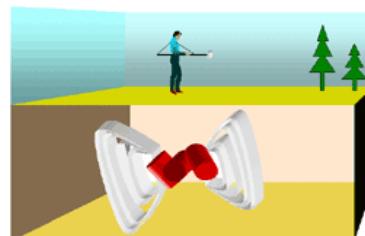
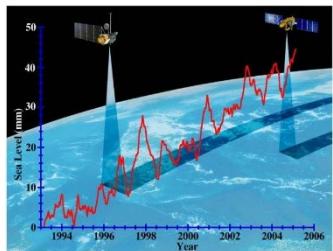
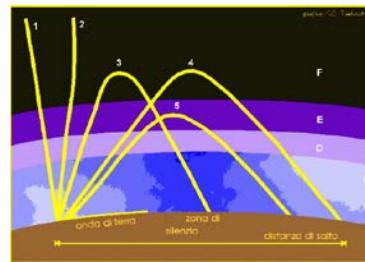
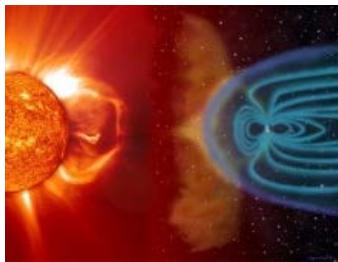


Environment Department





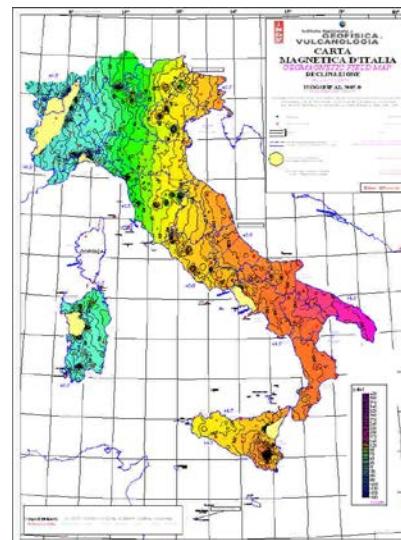
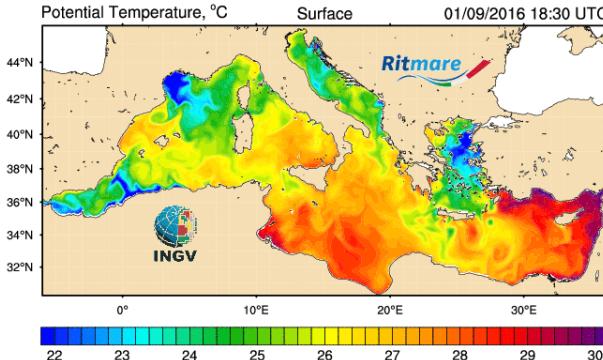
Environment | Research



- Geomagnetism
- Paleomagnetism
- Upper atmosphere physics
- Operational Oceanography
- Climate
- Paleoclimate
- Polar research
- Fluid Geochemistry
- Exploration Geophysics



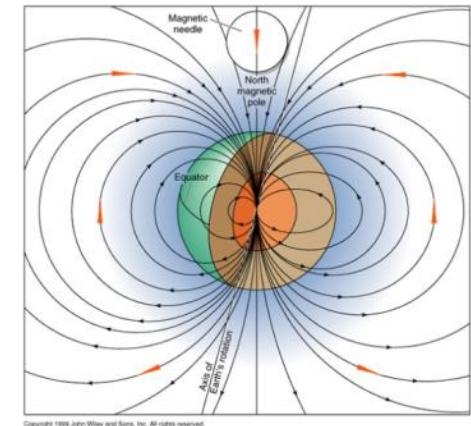
Environment | Services



- Bulletins
- Maps
- Real-time Data
- Databases
- Models
- Software
- Environmental monitoring
- Consulting
- Outreach

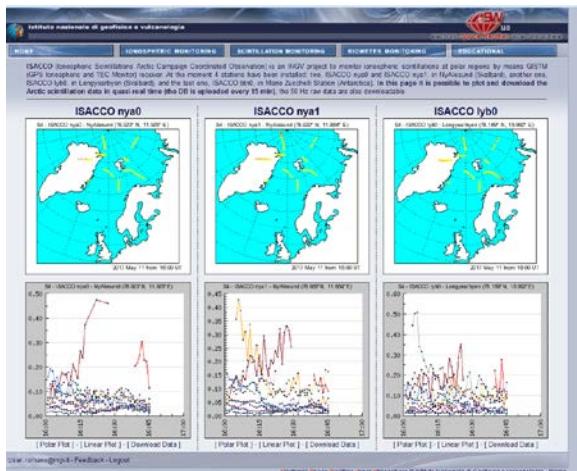


Geomagnetism and Paleomagnetism



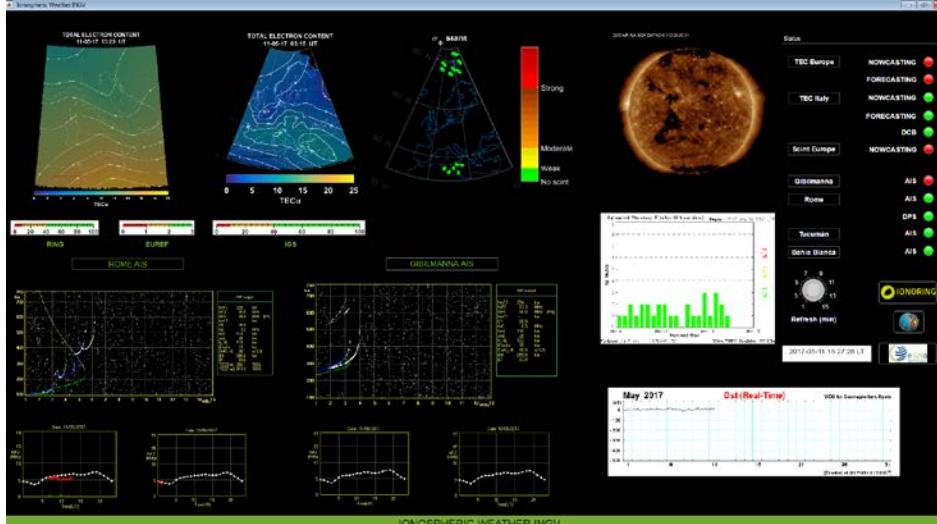


Upper atmosphere physics

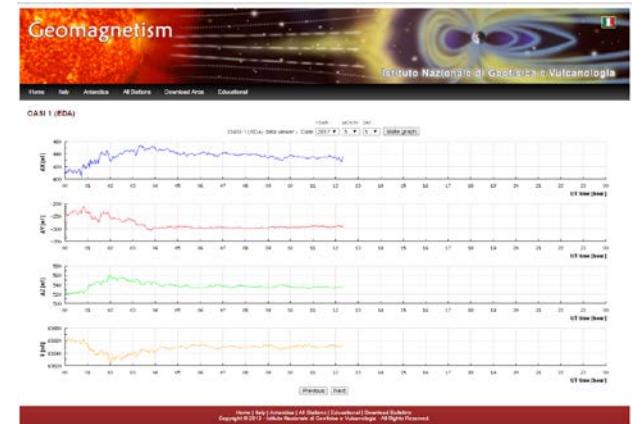
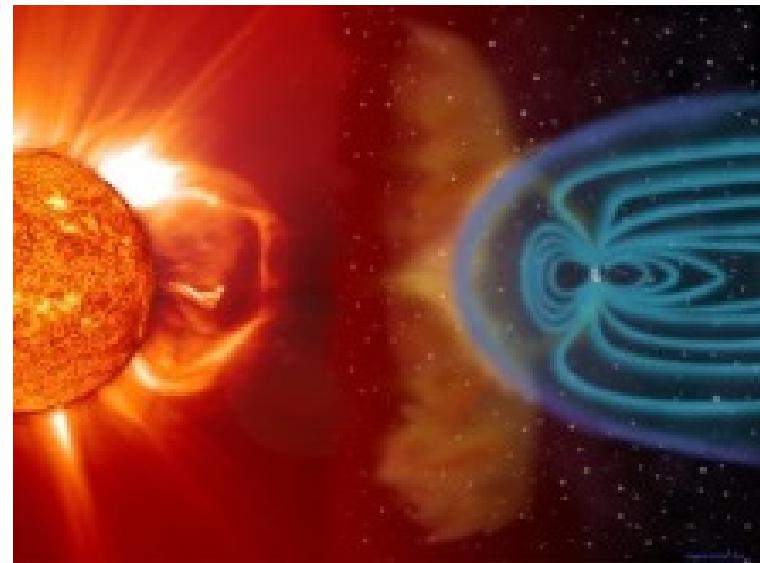


User: ianove@ingv.it - Feedback-Legato

Electronic Space Weather Upper Atmosphere Observatory - Istituto Nazionale di Geofisica e Vulcanologia - Roma



Space Weather and Sun-Earth interactions





ENVIRONMENT

Space Weather at INGV

- Monitoring Ionospheric and Geomagnetic parameters at mid, low and high latitudes
- Investigation on new models and indices
- Development of forecasting and alert tools
- Contribution to international initiatives
- Participation to international projects

*...ready to support a
National Space Weather Centre*

